Federal Interagency Committee on Indoor Air Quality (CIAQ)
Minutes of the Webinar/Meeting for 5-June-2013

1310 L Street, NW, Washington, DC 20005-4113

Webinar/meeting Duration: 97 minutes (1:00-2:37PM)
Webinar Registrations: 94 persons
Attendance: 78 persons (11 in the room; 67 by webinar)
Conference Call Operator: Delia

The next CIAQ Webinar-meeting is **Wednesday, October 9th 2013**
Email: CIAQ@epa.gov
Website: www.epa.gov/iaq/ciaq
Submit your presentation proposals to CIAQ@epa.gov

~ A G E N D A ~

1:00 Welcome, introductions and announcements, *Phil Jalbert*

Updates on IAQ & IEQ activities from Federal CIAQ Member Agencies
1-NIST-National Institute of Standards and Technology, Andy Persily

2-CPSC-Consumer Product Safety Commission, *Joanna Matheson*

3-DOE-Department of Energy, Building Technologies Program, *Christopher Early*

Q&A on Agency Updates

4-NASA-National Aeronautics and Space Administration, *Linda Cooper*

5-EPA-Environmental Protection Agency
- 5.1-Update from the Interagency Mold Workgroup, *Sarany Singer*
- 5.2-IEQ Branch, Office of Research and Development, *Bob Thompson*
- 5.3-Indoor Environments Division, *David Rowson (Director)*

Q&A on Agency Updates

Presentation: ***Evaluation of Steam Cleaning in Air Handling Unit (AHU) Coil Sanitization and Energy Conservation,***
by Dr. Rajiv R. Sahay, CIAQP, FIAS, I.H., and Mr. Francisco Aguirre, CIAQP, CIEC

[NOTE: Visit http://www.cadmusweb.com/Outreach/IAQ/June_2013_CIAQ_audio.mp3 to hear/download the MP3 presentation recording, available for a limited time.

Q&A on Presentation

2:37 Conclude the Webinar-meeting.

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~ MINUTES ~

Announcements

FOR IMMEDIATE RELEASE - May 29, 2013
EPA Proposes Rules to Protect Americans from Exposure to Formaldehyde

WASHINGTON – The U.S. Environmental Protection Agency (EPA) today proposed two rules to help protect Americans from exposure to the harmful chemical formaldehyde, consistent with a Federal law unanimously passed by Congress in 2010. These rules ensure that composite wood products produced domestically or imported into the United States meet the formaldehyde emission standards established by Congress.

Formaldehyde is used in adhesives to make a wide range of building materials and products. Exposure to formaldehyde can cause adverse public health effects including eye, nose and throat irritation, other respiratory symptoms and, in certain cases, cancer.

"The proposed regulations announced today reflect EPA's continued efforts to protect the public from exposure to harmful chemicals in their daily lives," said James J. Jones, EPA's acting assistant administrator for the Office of Chemical Safety and Pollution Prevention. "Once final, the rules will reduce the public's exposure to this harmful chemical found in many products in our homes and workplaces."

In 2010, Congress passed the Formaldehyde Standards for Composite Wood Products Act, or Title VI of the Toxic Substances Control Act (TSCA), which establishes emission standards for formaldehyde from composite wood products and directs EPA to propose rules to enforce the act's provisions. EPA's proposed rules align, where practical, with the requirements for composite wood products set by the California Air Resources Board, putting in place national standards for companies that manufacture or import these products. EPA's national rules will also encourage an ongoing industry trend towards switching to no-added formaldehyde resins in composite wood products.

EPA's first proposal limits how much formaldehyde may be emitted from hardwood plywood, medium-density fiberboard, particleboard and finished goods, that are sold, supplied, offered for sale, manufactured, or imported in the United States. The emitted formaldehyde may be left over from the resin or composite wood making process or be released when the resin degrades in the presence of heat and humidity. This proposal also includes testing requirements, laminated product provisions, product labeling requirements, chain of custody documentation, recordkeeping, a stockpiling prohibition, and enforcement provisions. It also includes a common-sense exemption from some testing and record-keeping requirements for products made with no-added formaldehyde resins.

The second proposal establishes a third-party certification framework designed to ensure that manufacturers of composite wood products meet the TSCA formaldehyde emission standards by having their composite wood products certified though an accredited third-party certifier. It would also establish eligibility requirements and responsibilities for third-party certifier's and the EPA-recognized accreditation bodies who would accredit them. This robust proposed third-party certification program will level the playing field by ensuring composite wood products sold in this

country meet the emission standards in the rule regardless of whether they were made in the United States or not.

More on Formaldehyde Proposals: http://www.epa.gov/oppt/chemtest/formaldehyde/index.html

More on EPA's TSCA Work Plan chemical effort:
http://www.epa.gov/oppt/existingchemicals/pubs/workplans.html

POC: Molly Hooven (Hooven.molly@epa.gov, 202-564-2313, 202-564-4355

A – Agency IEQ-IAQ Updates

1-NIST, National Institute of Standards and Technology

NIST Netzero House: Instrumentation of the NIST Net-Zero Energy Residential Test Facility is almost complete, with a year of monitoring set to begin to verify that it indeed operates at net zero energy over one year. This two-story, four-bedroom house incorporates energy-efficient construction and appliances, as well as energy-generating technologies such as solar water heating and solar photovoltaic systems. In the area of IAQ, the house has a heat recovery ventilator sized to comply with ASHRAE Standard 62.2, has an extremely tight envelope and was built with low-emitting building materials. Measurements of indoor VOC and aldehyde concentrations has started and will continue for one year to verify that the material specifications meet the intended goals. For more information, view the following video http://www.youtube.com/watch?v=xSzu83fyQaQ. Contact: Andy Persily, 301-975-6418, andyp@nist.gov.

Measurement of Ultrafine Particles or Incidental Nanoparticles: NIST is continuing experiments to measure ultrafine particles, as small as 2 nm, generated by common residential activities such as cooking and appliance use. Experiments are being conducted in NIST's three bedroom test house through the semi-continuous measurement of environmental conditions, building air change rates and particle concentrations. A paper on the entry of ambient nanoparticles via open windows and the impact of fan operation on indoor particle concentrations was recently published in Environmental Science and Technology (Vol 47, pp. 1922-1929). Another paper demonstrating the ability to predict the entry of outdoor nanoparticles was recently published in Atmospheric Environment (Vol 69, pp. 219-230). The most recent work has focused on the ability of air cleaners using electrostatic precipitator technology to remove these particles in the size range of about 10 nm or less, as well as the generation of ozone from these devices. Contact: Dustin Poppendieck, 301-975-8423, dustin.popendieck@nist.gov.

Improving the Reliability of Product Emissions Testing: Reference material development work to support the validation of product emissions testing has been focusing the production of toluene reference materials. Significant progress has been made on achieving uniformity of production and stable packaging approaches. Modeled emissions from a toluene referent material have also been experimentally validated using micro-chambers. Work is also continuing on reference materials for formaldehyde emissions. Contact: Dustin Poppendieck, 301-975-8423, dustin.popendieck@nist.gov.

CONTAM IAQ Model: NIST has developed a next generation simulation tool for modeling energy, ventilation and indoor air quality (IAQ) in high performance buildings. The tool combines the multizone airflow and IAQ analysis capability of EL's CONTAM program with the building energy modeling

capability of the TRNSYS simulation program. NIST and TESS, Inc. previously collaborated to create a combined multizone thermal and airflow building simulation by coupling limited aspects of the airflow portion of the airflow modeling component of CONTAM with the TRNSYS energy simulation program. CONTAM is a multizone airflow and contaminant dispersal program with a graphical interface for data input and display.

TRNSYS is a transient system simulation program with a modular structure that was designed to solve complex energy system problems by breaking the problem down into a series of smaller components. While the initial coupled TRNSYS/CONTAM tool has been used successfully, it did not include a full integration of the capabilities of the two tools. The recently released, second generation coupled simulation tool greatly expands the functionality by adding multizone contaminant simulation and access to all of CONTAM's airflow modeling components, including the ability to simulate air handling systems and ducted airflow networks. The new simulation capability is enabled in the latest version 3.1 of CONTAM, available for download from NIST at http://www.bfrl.nist.gov/IAQanalysis/software/.

ASHRAE: Standards and IAQ 2013

The next meeting of the committee responsible for Standard 62.2 on residential ventilation and IAQ will be held June 21st and 22nd in Denver, where several proposed changes to the standard will be discussed. Significant proposed changes include increasing the minimum filtration requirement and requirements addressing unvented combustion heaters. The 2013 version of the standard, with all approved addenda since 2010, is available at http://www.techstreet.com/products/1855284. Contact: Steven Emmerich, 301 975-6459, steven.emmerich@nist.gov.

Preparation continues for ASHRAE's 2013 indoor air quality conference with the theme Environmental Health in Low-Energy Buildings. The IAQ 2013 program committee is in the process of reviewing over 80 submitted papers on IAQ, thermal comfort, source control, air cleaning, ventilation, exposure and related environmental health concerns associated with low energy building design, construction, retrofit and operation. For more information on the conference, visit www.ashrae.org/iaq2013. Contact: Steven Emmerich: 301 975-6459, steven.emmerich@nist.gov.

ASHRAE Standard 189.1

Ongoing efforts to update and revise ASHRAE/USGBC/IES SSPC 189.1, Standard for High-Performance Green Buildings Except Low-Rise Residential Buildings, are continuing. A supplement to the 2011 standard was published on the ASHRAE website this spring, reflecting all of the approved change since 2011. This supplement can be downloaded at: https://www.ashrae.org/standards-research--technology/standards-addenda. In the area of indoor environmental quality, the following addenda have recently been through public review or are expected to be soon: m, which adds lighting quality to the scope of the IEQ section and adds associated requirements; r, ventilation in healthcare facilities; ae, VOC content of paints and coatings; and, ao, sealing of HVAC system filters. Future addenda are expected to address acoustics and moisture control. More information on committee activities can be found on the ASHRAE website. You can sign up for notifications of public reviews and other information via the ASHRAE 189.1 listserv at https://www.ashrae.org/resources--publications/free-resources/listserves. Contact: Andy Persily, 301-975-6418, andyp@nist.gov.

ASTM: D22.05 Subcommittee on Indoor Air

ASTM D22.05 Subcommittee on Indoor Air met last April in Indianapolis. Current subcommittee work items include the following proposed standards: assessing the uncertainty of product emissions chamber measurements; VOC emissions from spray polyurethane foam; exposure scenarios for residential buildings; calibration, quality control and auditing of thermal desorption/GCMS analysis related to emissions from materials; and, guidance on interpreting indoor carbon dioxide generation rates. More information regarding these efforts, as well as existing ASTM IAQ standards, can be found at www.astm.org/COMMIT/SUBCOMMIT/D2205.htm.

2-CPSC, Consumer Product Safety Commission
POC: Joanna Matheson (301.987.2564, jmatheson@cpsc.gov)

Nano material studies: The interagency activities with NIOSH continue. Analysis on a disinfectant spray containing nano silver is set to begin. There are additional interagency projects which are to evaluate various consumer products for the presence (and potential release) of nanomaterials. The interagency work with NIST continues into Phase II; these studies aim to quantify nanomaterial releases from various matrices in the indoor environment, distinguishing engineered nanoparticles from those produced incidentally. Dr. Tinh Nguyen, retired guest researcher at NIST, and Andy Persily have been pulled in to work on these studies (POC Treye Thomas, 301.987.2560, tthomas@cpsc.gov).

Portable generator safety: On 4/12/13, CPSC posted NIST Technical Note 1781 which describes a series of tests performed for CPSC on generators in commercially available and modified low CO emission prototype configurations to determine their CO emission and oxygen consumption rates while operating in an enclosed space. CPSC staff will use this information in the development of a test method and performance requirement in a potential staff recommendation to the Commission for a proposed rule to address the CO poisoning hazard posed by portable generators. (POC Janet Buyer, 301.987.2293, jbuyer@cpsc.gov).

Spray Polyurethane Foam (SPF) activities: EPA established a multi-agency work group to address several issues relating to SPF emissions. The agencies have received a number of a number of complaints regarding health effects including severe respiratory irritation, breathing difficulties, dizziness and nausea, resulting from the installation of SPF in homes. The work group has been working with industry on addressing issues such as the availability of consistent and accurate hazard communication on diisocyanates and other chemicals in the SPF insulation products; implementation of best practices that protect spray applicators, others in the work site, and occupants of residences, schools and other buildings; accurate marketing claims, and outlining of data gaps. There are work items (ASTM WK30960) under the ASTM Air Quality/Indoor Air (D22.05) subcommittee to standardize test methods for spraying, sampling, and packaging spray polyurethane foam (SPF) insulation products and to measure emissions from these products. An ASTM standard (ASTM D7859 - 13e1) was just accepted under this work item. CPSC contracted with Versar, Inc to produce a toxicological profile of select amine catalysts commonly found in SPF (**http://www.cpsc.gov/PageFiles/129845/amine.pdf**). Information from this report suggests that amine emissions may be the cause of these long term health effects (POCs Treye Thomas, 301.987.2560, tthomas@cpsc.gov; Melanie Biggs, 301-987-2593, mbiggs@cpsc.gov).

NSF/UL 440 – Health-based VOC Emissions Standard (Voluntary) for Building Products and Interior Furnishings: CPSC staff has been providing technical assistance on a biweekly basis to both the Toxicology and Environments/Products task groups. These groups are currently drafting proposal language to be presented to the NSF/UL 440 Joint Committee (by Fall 2013). The proposals will cover chemical VOCs and toxicology endpoints, modeling scenarios and associated parameters, and other topics of interest. (POC Kent Carlson, 301.987.2578, kcarlson@cpsc.gov).

Drywall Projects: CPSC has received over 4,016 reports from residents in 43 states, the District of Columbia, American Samoa and Puerto Rico. The majority of the reports remain from consumers residing in the states of Alabama, Florida, Louisiana, Mississippi and Virginia. The Drywall Safety Act of 2012, H.R. 4212, http://www.govtrack.us/congress/bills/112/hr4212/text, was signed into law on 1.14.2013. The work continues at ASTM (under ASTM C11) on a proposed standard regarding sulfur emissions from drywall. All drywall reports and studies are found at the first tab "Interagency Drywall Investigation" on the CPSC drywall webpage: http://www.cpsc.gov/en/Safety-Education/Safety-Education-Centers/Drywall/ (POC Joanna Matheson, 301.987.2564).

3-Department of Energy
POC: Chris Early (chris.early@ee.doe.gov, 202-5896-0514)

Building America Solution Center http://basc.pnnl.gov/

The Building America Solution Center provides residential building professionals with access to expert information on hundreds of high-performance design and construction topics, including air sealing and insulation, HVAC components, windows, indoor air quality, and much more.

The user-friendly interface delivers a variety of resources for each topic, including:

- Contracting documents and specifications
- Installation guidance
- Energy codes and labeling program compliance
- CAD drawings
- "Right and wrong" photographs
- Training videos
- Climate-specific case studies
- Technical reports.

Users can access content in several ways, including the ENERGY STAR® checklists, alphabetical lists, a house diagram with selectable components, and an information map. Logged-in users can quickly save any of these elements into their personal Field Kit.

The Solution Center is interactive and community-driven, informed by research teams, national laboratories, building codes, ENERGY STAR®, the U.S. Department of Energy (DOE) Challenge Home, industry professionals, and users like you.

Recent Reports by DOE related to IAQ.

Comfort, Indoor Air Quality, and Energy Consumption in Low Energy Homes. P. Engelmann, K. Roth, and V. Tiefenbeck Fraunhofer Center for Sustainable Energy Systems. January 2013 http://apps1.eere.energy.gov/buildings/publications/pdfs/building_america/comfort_iaq_low_energy.pdf

Summary. This report documents the results of an in-depth evaluation of thermal comfort for two potential net zero-energy homes (NZEHs) in Massachusetts. From the detailed analysis of the energy flows we can draw the following conclusions:

- Even with a highly optimized thermal envelope, nearly half the energy is still used for space conditioning (dominated by space heating). But both homes have unusually low loads for other electricity consumption (appliances, miscellaneous, and plug loads).
- The indoor thermal comfort met user expectations, although the homes *as operated by the occupants* did not always meet ASHRAE comfort standards.
- Occupants do not fully understand IAQ. As long as there are no odorous pollutants, they have no sensor for air quality. A sufficient air exchange must be ensured; in low energy homes this is typically done by mechanical ventilation.
- The installation, commissioning, maintenance, and operation of mechanical ventilation show room for improvement.

Ventilation Control of Volatile Organic Compounds in New U.S. Homes: Results of a Controlled Field Study in Nine Residential Units. Henry Willem, Erin L. Hult, Toshifumi Hotchi, Marion L. Russell, Randy L. Maddalena, Brett C. Singer. January 2013. DOE, HUD, EPA, and CEC. http://homes.lbl.gov/sites/all/files/lbnl-6022e.pdf

Commissioning Residential Ventilation Systems: A Combined Assessment of Energy and Air Quality Potential Values. William J.N. Turner, Jennifer M. Logue, Craig P. Wray. July 2012. DOE and CEC. http://buildings.lbl.gov/sites/all/files/lbnl-5969e_0.pdf

Assessment of Literature Related to Combustion Appliance Venting Systems. Rapp, VH, Singer, BC, Stratton, JC, Wray, CP. (2012). http://buildings.lbl.gov/sites/all/files/lbnl-5798e_0.pdf

Evaluation of an Incremental Ventilation Energy Model for Estimating Impacts of Air Sealing and Mechanical Ventilation Jennifer M. Logue, William J. N. Turner, Iain S. Walker, and Brett C. Singer. June 2012. DOE, HUD, EPA, and CEC. http://buildings.lbl.gov/sites/all/files/lbnl-5796e_0.pdf

Health and Safety Guide for Home Performance Contractors. J. C. Stratton, I. S. Walker. February 2012. http://buildings.lbl.gov/sites/all/files/stratton-hsguide-final-sized.pdf

Effect of Ventilation Strategies on Residential Ozone Levels. Iain S. Walker and Max H. Sherman. August 2012. DOE and CEC. http://buildings.lbl.gov/sites/all/files/lbnl-5889e_0.pdf

System Effects of High Efficiency Filters in Homes. Iain S. Walker , Darryl J. Dickerhoff, David Faulkner and William J.N. Turner. March 2013. DOE and CEC http://eetd.lbl.gov/sites/all/files/lbnl-6144e.pdf

Energy impacts of envelope tightening and mechanical ventilation for the U.S. residential sector. Energy and Buildings. Revision submitted Dec 2012. Logue JM, Sherman MH, Walker IS, Singer BC. 2013a. DOE, HUD, EPA, and CEC. http://buildings.lbl.gov/sites/all/files/lbnl-6053e_0.pdf

Maximizing information from residential measurements of volatile organic compounds. Healthy Buildings 2012, Brisbane Australia. Maddalena R, Li N, Hodgson A, Offermann F, Singer BC. 2012. DOE, HUD, EPA, and CEC http://eetd.lbl.gov/sites/all/files/maximizing_information_from_residential-final.pdf

4-NASA-National Aeronautics and Space Administration
POC: Linda Cooper (Linda.P.Cooper@nasa.gov, 202-358-0434)

The age of most NASA facilities, with many located in humid climates, along with limited maintenance dollars, contributed to a situation across the agency where indoor air quality could quickly spiral out of control. Recognizing this, NASA developed a policy in 2009 which required NASA facilities to implement an Indoor Air Quality (IAQ) Program to control the negative impact poor IAQ can have in the workplace on injuries, illnesses, and adverse health symptoms affecting a person's productivity, morale, and absenteeism. In general, IAQ issues are managed by promoting a proactive approach, relying on informed and educated residents to bring IAQ issues to the attention of the site Environmental Health offices.

The air sampling program is primarily complaint/request driven; however, proactive water management, forward and proactive communication on work affecting IAQ, and limitation of sources of indoor air pollution are actively addressed and construction and maintenance; HVAC systems; use of low VOC materials; housekeeping and spill cleanup protocols; mold remediation programs; integrated pest management programs; and monitoring external Infiltration into buildings are included as program elements. The entire document is being updated in 2014, but no substantive changes are being proposed in the IAQ area. Some of the Centers programs are excellent; some are still working toward meeting all requirements.

The policy requires the Office of the Chief Health and Medical Officer to provide advice on IAQ and periodically review Centers' IAQ programs and policies for efficacy. It requires the Field Centers to have written IAQ programs that ensure all indoor environments are free from recognized hazards for human occupancy. The policy promotes organizational involvement across all levels of employees (e.g., Affected Persons, IH, Occupational Medicine, Building Managers, Janitorial Staff, and Maintenance and Operational Staff).

Specifying investigation requirements, coverage includes designation of Competent Persons; open and transparent communication; data needs analysis; representative sampling; report quality; coordination with stakeholders and corrective actions. It also establishes minimum recordkeeping requirements to include a log of IAQ complaints, interview/questionnaires/forms, monitoring/sampling documentation and IAQ reports with conclusions and recommendations.

NASA conducts monthly Environmental Health ViTS to assist IH professionals in obtaining CEUs necessary to maintain the currency of their credentials. The November 7, 2012 ViTS featured five separate presentations focused on the topic of Center Indoor Air Quality (IAQ) Programs. NASA's Sr. Environmental Health Officer, Guy Camomilli provided an overview of the Agency requirements found in NPR 1800.1C, Chapter 4.10. Then, four NASA Centers (GRC, JSC, JPL and MSFC) shared about their respective IAQ programs discussing a wide range of aspects including policy, processes (forms), proactive efforts to mitigate IAQ problems, and diagnostic and remediation equipment.

Most of our Centers have state-of-the-art diagnostic equipment for managing and detecting IAQ issues. The latest being the infrared cameras some Centers have purchased to identify water issues. Marshall Space Flight Center received recognition in March of this year for their ability to investigate IAQ concerns. In addition to having the more typical IAQ instrumentation to measure CO, CO2, humidity, and temperature, Marshall has procured and are using particle counters, infrared cameras, and air-o-cell sampling devices.

Examples of the types of equipment used throughout NASA include:

- Zefon Bio-Pump - It provides the simplest and most convenient way to sample with Air-O-Cell® and Via-Cell® cassettes at a flow rate of 15LPM.
- Rigid Borescope - Used to inspect work where areas are inaccessible by other means
- TSI 8520 DUSTRAK AEROSOL MONITOR - Provides reliable exposure assessment by measuring particle concentrations corresponding to PM10, PM2, PM1.0 or respirable size fractions.
- Quest AQ5001 PRO Indoor Air Quality Monitor Measures CO2, Temperature, Relative Humidity, and CO
- TSI P-TRAK Ultrafine Particle Counter - The P-TRAK is designed to detect very small particles, with its range of 1 micron down to 0.02 microns.
- TSI Q-TRAK Indoor Air Quality Monitor - Measures CO2, Temperature, Relative Humidity, and CO readings simultaneously using a single probe.
- FLIR B60 with Extech Moisture Meter + Bluetooth Capability Infrared camera specifically designed for building inspections such as missing insulation, HVAC heating and cooling issues, moisture detection, electrical problems, plumbing problems, termite & pest infestation, and much more. The moisture meter simultaneously displays moisture value of wood or material being tested, Air Temperature, IR Temperature, or Humidity. It also has wireless communication with FLIR Thermal Imaging Cameras.
- N6 Anderson Bioaersol Sampler Separate organisms from the air in order to conduct a culturable assay to assess the quality of air.
- AirBoxx, KD Engineering - The AirBoxx offers continuous monitoring of the basic IAQ parameters (CO, CO2, Temp, and RH), along with additional channels for customization, including a PID option.
- MiniRAE 3000 - The MiniRAE 3000 is ideal for a range of applications from HazMat and leak detection to industrial hygiene.

- EVM-7 Environmental Monitor - EVM-7 simultaneously measures particulates, volatile organic compounds (VOCs) with PID, toxic gas, carbon dioxide, relative humidity, temperature, and air velocity (with accessory probe).

Finally, the recently implemented NASA Electronic Health Record System will be used to track IAQ investigations and related findings. OCHMO has asked the Centers to create a survey to record an IAQ investigation in the record system. However, there may be IAQ-related complaints that don't turn into full blow IAQ investigations.

Those complaints, where the underlying cause is immediately determined, without an IAQ survey, would not necessarily be tracked since having the Centers track all Environmental Health-related complaints was not a part of the minimum data set established for IH issues. Also, NASA didn't require Centers to enter all their IAQ sampling data because it really isn't characterizing personal exposures as most all IAQ related samples are general area sampling.

International Space Station – Air Quality in a Unique Environment

The International Space Station (ISS) has been orbiting the Earth for nearly 14 years. Six international crewmembers live and work in this unique, self-contained environment that requires regular monitoring and filtering of the air to ensure it meets air quality standards. Comprehensive requirements and standards such as Spacecraft Maximum Allowable Concentration (SMACs) and appropriate sensors and instruments are on board for real-time analysis to determine chemical constituents that may be present. Because airflow in microgravity does not follow the same distribution models as on Earth, air is moved mechanically through fans, to ensure no air pockets remain.

For example, if an odor is released in an isolated part of a module that does not see a lot of activity; the odor will remain where it was released. To minimize off gassing in the ISS, all materials, including modules, scientific equipment, and packages, undergo off gas testing before they are sent to the ISS. In addition, an effective system to monitor air quality on ISS and assess the danger of a wide variety of chemical compounds that are in the air has been developed. Crewmembers are trained on the use of the equipment and how to respond to occupational hazards such as a toxic release of materials in the air from a fire or leaking coolant.

This ISS update was provided by Office of the Chief and Medical Officer, NASA Headquarters.

5-EPA-Environmental Protection Agency

5.1-Update from the Interagency Mold Workgroup. CDC informally shared lessons learned from a brief needs assessment visit to SuperStorm Sandy-affected areas of New York City one month after landfall. CDC reflected on contrasts with Post-Hurricane Katrina public health issues.
POC: Sarany Singer (Singer.Sarany@epa.gov)

5.2-Update Pending **-- Update from the IEQ Branch, Office of Research and Development (ORD)**
POC: Bob Thompson (919-541-1904, Thompson.Bob@epa.gov)

5.3-IED, Indoor Environments Division

Schools

SHIELDS- School Health and Indoor Environments Leadership Development Summit

On June 20, 2013, we will hold the second School Health and Indoor Environments Leadership Development Summit (SHIELDS) to further collaborate with a broad network of schools stakeholders and decision makers to design effective and innovative strategies for motivating and equipping school districts to create healthy indoor environments in schools.
At this Summit, we will bring together our extensive network of non-governmental organizations, school district representatives with established, sustainable IAQ management programs, industry leaders, community-based asthma coalitions, universities, states and our internal and external federal counterparts. During the day-long event we will continue the momentum that was started at the 2012 SHIELD Summit where a group of 70 school health leaders committed together to accelerate school district adoption of IAQ management programs nationwide by designing outreach and training events and providing access to their constituents. We look forward to this exciting event and to continuing to advance this national movement.

National IAQ Schools Network

If you are not already a member of the National IAQ Schools Network, please consider joining and encouraging your stakeholders to join. It is an easy and effective way to connect to a network of more than 6,000 national and local champions who can provide assistance and guidance on creating a healthy school environment; let us know about your school related activities and learn about other Federal, State and local school environmental health activities and events. Send an email to IAQTfSConnector@cadmusgroup.com with "Subscribe" in the subject line to join.

IED has been collaborating with the Department of Education on their Green Ribbon Schools Awards Program and the Green Strides Webinar Series. The Green Strides Webinar Series provides the schools community the tools to reduce their schools' environmental impact and costs; improve health and wellness; and teach effective environmental literacy programs. These topics correspond to the three pillars which make up the Green Ribbon School Awards Program. Our work on healthy indoor environments in schools, in particular, falls under Pillar 2.

On August 7, 2013 from 2-3pm, we will be partnering with the Department of Education to deliver the next webinar in the series, entitled "Mold and Moisture Control in Schools: Potential Health Effects and Safe Clean-Up Practices. Stephen Caulfield from Turner Building Science & Design, LLC, Maine, will be the featured speaker. The webinar will cover practical and cost-effective solutions to prevent and control mold and moisture issues in schools. In addition, participants will learn about the most common sources of mold and moisture in schools and resources available to help remediate mold. Stay tuned for information on how to register for this webinar!

Asthma

Asthma Awareness Month: As most of you know May was Asthma Awareness Month. During the month, the Indoor Environments Division (IED) supported many exciting activities to draw attention to and reduce racial and ethnic asthma disparities.

Through the website AsthmaCommunityNetwork.org., IED supported many local, regional and state events around the country to promote public action to improve the lives of people with asthma. IED implemented a social media plan featuring award winning programs, national experts and other champions, through blogs, podcasts, Facebook and Twitter posts. To kick-off the month, an EPA Greenversation blog authored by former NFL player, Chris Draft, was featured. For those of you who don't know, Chris has partnered with EPA to help empower children and families to effectively manage asthma so that they can live healthy and active lives.

Announcement of 2013 National Environmental Leadership Award in Asthma Management Winners: EPA has selected three programs to receive the 2013 National Environmental Leadership Award in Asthma Management for their outstanding accomplishments in addressing the needs of disproportionately impacted populations. The Awards Review Panel included representatives from HUD, Merck Childhood Asthma Network (MCAN), America's Health Insurance Plans (AHIP), University of Michigan School of Public Health, and American College of Chest Physicians (CHEST). The recipients were announced on World Asthma Day 9May 7) in an EPA press release. The programs which are being recognized include the following: Greenville Health System, Greenville, SC; Parkview Health, Fort Wayne, IN; and North East Independent School District, San Antonio, TX.

Webinar on Controlling Asthma in Chicago Public Housing: On May 16, the Indoor Environments Division (IED) hosted a webinar entitled "*Collaborating to Control Asthma in Chicago's Public Housing Using Community Health Workers.*" The webinar featured speakers from the Sinai Urban Health Institute and Chicago Housing Authority who collaborate on work to control asthma in six public housing building developments. Participants learned about best practices for implementing an asthma intervention in public housing that relies on hiring and training community health workers who reside in the housing development. More than 300 asthma and community health leaders participated in the webinar. The webinar slides and recording will be available on AsthmaCommunityNetwork.org. If you are not already a member, join today!

Allergy and Asthma Day on Capitol Hill: On May 8 and 9, IED staff participated in several events in Washington DC during the 16th annual Allergy and Asthma Day on Capitol Hill hosted by the Allergy and Asthma Network/Mothers of Asthmatics (AANMA). Brenda Doroski gave a presentation on EPA's asthma program at a half-day Asthma Summit which attracted patients, physicians, representatives from federal agencies and non-profit organizations. AANMA also hosted an Allergy and Asthma Health Expo in the Rayburn House Office Building where EPA staff distributed educational and outreach materials to congressional staffers and the general public.

EPA and Ad Council Partner to Raise Asthma Awareness: In May, EPA and the Ad Council re-distributed the award-winning "Fish Out of Water" national media campaign to media outlets in English and Spanish as well as the asthma "Gold Fish" billboards and bus shelter PSAs. In addition, Native American radio spots, in three native languages, received a special push out to broadcast

stations. Media companies donate available space in many cities around the country. These PSAs can remain in use for many months driving millions of viewers to the asthma campaign's website to learn more and to get a personal asthma action plan.

AOL Features Asthma: In celebration of Asthma Awareness Month, AOL featured Asthma on AOL's Home Page as its "Cause of the Day" driving millions of viewers to the EPA national asthma campaign NOATTACKS.ORG website. This asthma website gives parents helpful tips to manage indoor and outdoor asthma triggers to prevent attacks.

Homes

Indoor airPLUS: Revisions to Indoor airPLUS Construction Specifications
The first revision to the Indoor airPLUS Construction Specifications (Version 1, Revision 1) was released to partners at the Residential Energy Services Network (RESNET) National Conference in Orlando, FL, at the end of February. Revision 1 improves alignment with the ENERGY STAR New Homes program and leverages the synergies in construction features that benefit both energy efficiency and indoor air quality. The updated construction specifications are also intended to ease barriers of entry into the program for builders, without reducing indoor air quality protections.

Upcoming webinar: ***Building on ENERGY STAR: Stepping up to EPA's Indoor airPLUS Label***
On June 25, 2013, EPA will host the ***Building on ENERGY STAR: Stepping up to EPA's Indoor airPLUS Label*** webinar. This webinar will highlight how it's now easier to improve the health, comfort, quality and value of new homes. In addition, participants will:

- Learn how the revised Indoor airPLUS Construction Specifications include alternative pathways, clearer exceptions, and simplified requirements.
- Hear how Indoor airPLUS adds health to your ENERGY STAR value proposition.
- Discover how increased program alignment with ENERGY STAR minimizes effort and eases market expansion.

Register for the webinar at: https://www3.gotomeeting.com/register/372986070

Radon

1-EPA state radon grants have been included in the Agency's FY13 Operating Plan. $7.6 million will be awarded by EPA Regional offices to state and Tribal programs.

2- EPA continues to collaborate with other partner agencies to implement the Federal Radon Action Plan. In February, participating agencies released an Accomplishments Report for the Plan that shows over half of the commitments made by the federal agencies have been fulfilled and over a dozen more are on track to completion. Check out our newly updated website for more info, at epa.gov/radon.

3-A noteworthy development under the FRAP has been the focus on including radon more significantly in state cancer plans. EPA and CDC are collaborating to share the best-in-class approaches of states that include radon risk reduction goals in their plans. Recently, a successful stakeholder meeting was held in Asheville, NC with EPA Region 4 states in attendance to address this issue.

4-HUD MF policy – the highest impact action from the FRAP is the new HUD MF policy. The American Association of Radon Scientists and Technologists and HUD (with assistance from EPA) delivered a webinar on May 29 focused on implementation of the new policy. HUD is requiring testing for radon gas in any multi-family housing that receives HUD financing or refinancing. If testing indicates that high levels of radon are present, HUD requires that the building be repaired to reduce radon levels indoors.

5-New ANSI/AARST multifamily provisional standard - The AARST Consortium on National Radon Standards has announced release of a provisional American National Standard for radon mitigation professionals entitled, "Radon Mitigation Standards In Multifamily Buildings." The new document establishes preliminary standards for mitigating multifamily housing in the United States. The committee has resumed meetings to address public comments and push this provisional standard to full standard status.

6-EPA continues to provide technical assistance on the multifamily mitigation standard as well as four other AARST standards of the following topics: radon mitigation in schools and large buildings, radon measurement in schools and large buildings, radon measurement in homes update and radon device performance protocols. Committees continue to meet on a regular basis to review and edit document drafts. EPA expects the two schools and large buildings standards will be ready to be released for public review in the next few months.

Tribal

In April, OAR began implementing a Tribal Indoor Air and Radiation Strategy & Plan, which is designed to optimize our limited tribal resources, increase collaboration at the National, Regional and Tribal levels, and to be more responsive to Tribal needs. The plan is based in large part on priorities and recommendations made through multiple Tribal listening sessions. An Office of Radiation & Indoor Air (ORIA) Tribal Team has formed and will be leading efforts across EPA Indoor Air and Radiation programs to increase collaboration and refocus commitments and activities to be responsive to the Strategy & Plan. Plan highlights include: creating a stronger, more meaningful relationship between Tribes and ORIA; developing tribal indoor air and radiation expertise; and tailoring resource materials to Tribes. The Strategy & Plan is a living document and will be updated to reflect evolving EPA program direction and Tribal needs.

B -- Presentation: ***Evaluation of Steam Cleaning in Air Handling Unit (AHU) Coil Sanitization and Energy Conservation,*** by Dr. Rajiv R. Sahay, CIAQP, FIAS, I.H., and Mr. Francisco Aguirre, CIAQP, CIEC. The PDF copy of the Presentation is on the CIAQ Website co-located with these Meeting Minutes. The presentation may also be accessed here: http://www.pureaircontrols.com/epa.ppt

[**NOTE:** Visit http://www.cadmusweb.com/Outreach/IAQ/June_2013_CIAQ_audio.mp3 to hear/download the MP3 presentation recording, available for a limited time.